



Forest Health Protection Pacific Southwest Region



Date: October 6, 2005
File Code: 3420

To: District Ranger, Sierraville RD, Tahoe NF

Subject: Dwarf Mistletoe in 1974 Cottonwood Burn Plantation (Evaluation #NE05-10)

On October 3, Steve Weaver, District culturalist and Bill Woodruff, Forest Health Protection (FHP) plant pathologist examined some of the dwarf mistletoe-infected ponderosa (PP) and Jeffrey (JP) pine in and around the 1974 Cottonwood Burn plantation located in Section 27 T20N R15E. The objective was to determine the extent of the disease and evaluate a proposal for reducing the impacts of this dwarf mistletoe infestation. The plantation trees range in height from about 10 feet to about 25 feet. Currently, approximately 20 acres of the plantation is infected. As reported, the dwarf mistletoe appears to be advancing at a rate of 2 to 6 feet a year and is killing a number of the heaviest-infected sapplings. It is likely that 50-60 percent of the 150 acre plantation will eventually become heavily infected and valueless as a timber crop.

Dwarf mistletoe infestations in the Cottonwood Burn Plantation originated in scattered infected pine trees which survived the 1974 burn and subsequent salvage removals. Currently, infected overstory pine trees range in height from about 40 feet to about 100 feet. Dwarf mistletoe seed is capable of spreading sixty feet (or more depending on the height of the infection, the wind, and the terrain) from plants living in the crowns of mature JP and PP. Once dwarf mistletoe becomes established in a stand of seedlings, it gradually spreads tree-to-tree and within the crowns of infected trees. In seedlings and sapplings, dwarf mistletoe can eventually infest the whole crown (including the bole) and kill the tree. By treating dwarf mistletoe infected trees soon, it is possible to reduce the impact this disease will have on the stand in the future.

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Dwarf Mistletoe Treatment Opportunities

There are approximately 20 acres in or near the plantation which need treating in order to protect the investment made in planting and culturing 150 acres after the burn. Possible treatments include:

- Prune infected branches with infections located 12" or more, from the main stem. Pruning can be effective in overstory as well as plantation trees. Leave at least 35% live crown in the pruned trees.
- Destroy unprunable and heavily infected trees (dwarf mistletoe rating, DMR ≥ 4).
- Destroy unprunable infected overstory trees; or provide 75 foot pine-free buffers around infected overstory trees.
- Treat pruning and felling slash as needed (removal, piling/burning, mastication).
- Examine all trees in and around treatments in 5-6 years to locate and remove latent dwarf mistletoe infections.
- Alternatively, during the original and follow-up treatments, understory pine trees with light dwarf mistletoe infection (DMR ≤ 2) confined to the lower crown may be retained.

By pruning all the dwarf mistletoe from the trees or removing infected trees, the disease can be eliminated. By destroying the heavily infected and unprunable plantation trees and pruning/destroying/isolating the infected overstory pine, the disease can be controlled as long as the residual infected plantation trees have only light infections confined to their lower crowns. Young pine trees with light dwarf mistletoe (DMR ≤ 2) in their lower crowns can outgrow the slowly-advancing dwarf mistletoe and produce merchantable crop trees. However, the mistletoe may eventually spread high into the crowns of some crop trees and infect small regenerated seedlings long into the future.

Since the life cycle of dwarf mistletoe in pine requires 5-6 years from infection to seed production, it is necessary to examine the trees five or six years after treatment to remove latent infections that develop into seed-producing dwarf mistletoe plants after the initial treatment. Large freshly cut pine stumps (14" or larger) should be treated with SPORAX® to prevent the fungus *Heterobasidion annosum* from infecting the pine roots through the stump and killing nearby trees, decades into the future.

As a result of the examination, the District has decided to propose a prevention/suppression project to FHP to obtain funding to control this infestation. The NEPA documentation exists to permit this treatment.

/s/ Bill Woodruff

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